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Populus Maximowiczii. This tree is a native of eastern Siberia, eastern Saghalin and northern Japan. It is the largest tree of eastern Siberia where it sometimes grows eighty feet high with a trunk six feet in diameter and a broad head of massive spreading branches. On young trees the bark of the trunk is smooth and pale brown, but on old trees it becomes thick and furrowed. This Poplar was first sent to the Arboretum from Petrograd in 1878 but its distinctive characters were not recognized until some years later. The plants now in the Arboretum were propagated from the Petrograd tree which disappeared when the Poplar Collection was rearranged on the southern slope of Bussey Hill. They are now twenty years old and about thirty-five feet high. They have never been attacked by borers which make the cultivation of the Balsam Poplars and some of the Cottonwoods so difficult and unsatisfactory, and their leaves apparently have no attraction for leaf-eating caterpillars. The leaves are green and lustrous on the upper surface, silvery white below, three or four inches long, and two or two and a half inches wide. The fruit, which is fully grown in May, unlike that of other Poplars, remains on the trees here until September without opening.

Native and Foreign Trees. *Populus Maximowiczii* is not only the handsomest and most satisfactory tree in the Poplar Collection but it is one of the few large exotic trees with deciduous leaves which can be recommended for general planting in the northern states. For the list of such trees is a short one. It includes the Ginkgo, which stands alone in its class and is one of the great trees of the world. The only sur-

vivor of a race which was once widely spread over the northern hemisphere, this inhabitant of eastern continental Asia is long-lived and able to support extremes of heat and cold, and to grow equally well in Massachusetts, Georgia and California. The Gingko is appreciated and has been largely planted in the city of Washington, but in other parts of the United States the beauty of this tree when it gets beyond its juvenile habit is not understood. *Pseudolarix* is another Chinese tree which is alone in its class and, although discovered only seventy years ago, it has been long enough in this country to show that it is perfectly able to adapt itself to the Massachusetts climate. This is surprising for the home of *Pseudolarix* is on low mountain slopes not far from the coast and south of the Yangtse River. The European Larch, although less picturesque than the Larch of northeastern North America, is a larger and more valuable tree, and the experience with it in New England shows that it is a tree which can be depended on to grow here rapidly to a large size.

The two Silver Poplars of Europe (*Populus alba* and *P. canescens*) flourish in the United States where they have grown to a large size and are as much at home as they are in their native countries. The pale color of the foliage of these trees is unlike that of any of the American species, and their hardiness and vitality make them useful for planting in exposed positions. The Silver Poplar of northern China (*P. tomentosa*) is one of the handsomest of all Poplar-trees. It has grown well in the Arboretum but it is too soon to form an opinion of its value in this country. Two European Willows, *Salix alba* and *S. fragilis*, and some of their varieties, have become completely naturalized in the northeastern states where they grow as large or even larger than in Europe and are important additions to the North American silva. The Chinese Weeping Willow (*S. babylonica*) is not always perfectly hardy in Massachusetts, but further south is valued as an ornamental tree. The so-called Wisconsin Willow, a natural hybrid between this Chinese Willow and *S. alba*, and other hybrids of the same parentage are useful ornamental trees in the northern states.

Cercidiphyllum is the largest deciduous-leaved tree of Japan, and although it was introduced into the United States only forty years ago it gives promise of becoming a permanent addition to the trees of the largest size which can be successfully grown here. The Chinese White Mulberry (*Morus alba*) is a larger and hardier tree than the Mulberry-tree of the eastern states, and is perfectly at home here. Probably the most generally useful, however, of the large deciduous-leaved trees which have been brought into the northern states is the Ailanthus of northern China which must have been growing here for nearly a century. It grows rapidly and is perfectly hardy, and it can resist the heat, drought and dryness which trees have to suffer in our cities better than any other tree with the exception, perhaps, of some of the Poplars. The Ailanthus, too, produces handsome wood valuable in cabinet-making.

The Japanese White Oaks are handsome trees and produce valuable timber. They grow well in the Arboretum and give every promise of

living here for many years. Under the most favorable conditions in Japan they do not become as large as our native White and Bur Oaks, and do not produce more valuable timber than these and several other American White Oaks. All foreign Oaks which can be induced to live here are proper inhabitants of the Arboretum where they are needed for study and public display, but for general planting the Oaks of other countries will never be used in New England in preference to the native species. Of all the Elm-trees of the world not one equals in grace and beauty the White Elm of eastern North America (*Ulmus americana*). It is a true lover of the country, however, and only shows its greatest beauty in the deep moist soil of a New England intervale. Moved to the city it soon languishes, for it resents city conditions of overdrained soil, smoke and bad air. One of the so-called English Elms is better able to thrive in cities where the American Elm fails, and in Boston and its suburbs the English tree has been growing for more than a century and has proved itself valuable. None of the exotic Ash-trees are really valuable here. For general planting in the eastern United States no Ash is as good as the American White Ash (*Fraxinus americana*) for the decoration of parks and roadsides and the production of timber. The European Ash (*Fraxinus excelsior*), which is a magnificent tree in some parts of Europe, is a miserable failure here, and the great Ash-tree of northeastern continental Asia and northern Japan (*F. mandshurica*) can barely be kept alive in New England. European Birch-trees grew well in the northern states until they were attacked by a borer which destroyed them by thousands. The slender drooping branches of *Betula pendula* make it an interesting and attractive object but it is not as handsome a tree as the native Canoe Birch (*Betula papyrifera*) which is the handsomest of the white-barked Birches and in one of its forms exceeds all other Birch-trees in size. *Betula Maximowiczii* with pinkish bark, and a native of northern Japan, is, however, a handsomer tree than the Canoe Birch. It has been growing in this country for twenty-five years, and although it has grown well and is perfectly hardy here it is too soon to speak of its permanent value.

The pale gray bark of the trunk and branches of the American Beech makes it in winter the most beautiful of all Beech-trees, but as a planted tree it does not behave as well or grow as rapidly as the European Beech which, in spite of its darker colored bark, is a better tree for the decoration of our parks. The northern Linden (*Tilia glabra* or *americana*) is a noble tree in the northern forests where in deep moist soil it sometimes grows to the height of one hundred and thirty feet and makes a trunk four or five feet in diameter, but it does not take kindly to cultivation in a climate as warm as that of Massachusetts. Planted trees grow slowly here; the leaves are usually disfigured by red spiders and turn brown and fall during the summer. There are a number of Linden-trees in the middle and southern states but little is yet known about them as cultivated trees, and a planter who wants Linden-trees had best use some of the European species. There are five of these, and the three species of western Europe have been so thoroughly tested in the United States that it is possible to say that

they are among the most valuable trees which have been brought here from foreign countries. The most satisfactory of them here is *Tilia vulgaris*, a widely distributed but rather rare tree in Europe and believed to be a natural hybrid between the other western European species *T. platyphyllos* and *T. cordata*. There are large specimens of this Linden in the suburbs of Boston. No American Horsechestnut or Buckeye can compare in size or in the beauty of its flowers with the species of southwestern Europe (*Aesculus Hippocastanum*), which is well known to many Americans who have never heard that there were Horsechestnut-trees growing naturally in the United States. The European Horsechestnut is another of the great trees of the world. It is as much at home here and grows to as large a size as it does in western Europe. Few trees have more conspicuous flowers or foliage of deeper green. It thrives, however, only in deep rich soil and usually resents city conditions. In some old gardens in Salem, however, there are as noble Horsechestnuts as can be found in the United States or Great Britain. It is a miserable street tree, as can be seen in Paris, where the leaves turn brown and fall by midsummer, and in New York and Boston where fortunately it has not been generally planted. Among the Maples of large size which have been planted in the eastern states only the so-called Norway Maple (*Acer platanoides*) has shown real power to flourish here. It is a smaller and less beautiful tree than the native Sugar Maple, but the Sugar Maple, too, resents city conditions and objects to living at the seashore, and as the Norway Maple has proved a valuable tree for city and seashore planting it must be considered one of the really valuable foreign trees introduced into this country. The Old World Walnut-tree (*Juglans regia*) sometimes called English Walnut or Persian Walnut, although it is a native of China, is a handsomer and more valuable tree than any of the American Walnut-trees, but unfortunately it is only doubtfully hardy in the northeastern states and will probably never grow to a large size here or produce the great crops of nuts and the timber which make this such a useful tree in many parts of the world. Chestnut-trees (*Castanea*) are fast disappearing from the United States as the Chestnut-tree disease spreads, and there is now little interest in drawing a comparison between the American and foreign species. The European Chestnut is not hardy in Massachusetts. The Japanese Chestnut is a small tree of no great value, and the Chinese *Castanea mollissima*, which it is hoped may prove resistant to the disease, has only been in the country for fifteen years. It has proved hardy in the Arboretum and produces a little fruit here.

It appears therefore from the experience gained in Massachusetts during about a century that only the following deciduous-leaved trees of large size have proved themselves to be worth general planting in the northeastern states for ornament or timber:— the Gingko, the Pseudolarix, the European Larch, three species of Poplar, three Willows and their hybrids, the Cercidiphyllum, the White Mulberry, the Ailanthus, the European Beech, the English Elm, one Birch, three Lindens, the European Horsechestnut, and the Norway Maple, twenty in all. At the end of another century the record of the Arboretum will, it is to be hoped, be able to tell a story of greater successes.